Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	
Public Safety and Homeland Security Bureau Seeks Comment on Ways to Facilitate Earthquake-Related Emergency Alerts	**PS Docket No. 16-32**

To Chief, Public Safety and Homeland Security Bureau:

RE: Notice of Proposed Rulemaking

I. INTRODUCTION – GSS INTEREST IN THIS RULEMAKING

Global Security Systems ("GSS") is a systems integrator, service provider, and manufacturer of ALERT FM, an FM radio-based emergency alert system using Radio Data System ("RDS"), GSSNet, satellite delivery system, and GSSNet Alert Studio, a Common Alerting Protocol ("CAP")-Emergency Alert System ("EAS") message delivery system. GSS has participated in the development of Integrated Public Alert and Warning System ("IPAWS")-based systems, has been a member of the Commercial Mobile Alert Service systems committee, Communications, Security, Reliability and Interoperability Council (CSRIC) and is actively involved with several EAS and CAP committees. The GSS nationwide GSSNet satellite delivery system for emergency alerts currently is in operation now at over 550 locations and growing daily. It includes the ability to generate and deliver CAP messages and deliver rapid alerts (less than 6 seconds) for Earthquake Early Warning and tornado activity. Key observations of Emergency Alert System using RDS:

-- Using FM radio platform with RDS data channel connected by satellite provides a purpose-built, dedicated broadcast-base alert system to deliver earthquake alerts in less than 6 seconds since switched networks do not encumber the signal path.

-- A FEMA study was performed by Northrop Grumman and funded by Congress (2011), Radio Data System Study Demo Report and Product Spec. report of the study can be found at web link: https://www.fema.gov/media-library/assets/documents/90051

--- No special licensing or spectrum allocation is necessary.

-- Satellite connectivity eliminates the daisy-chain effect and eliminates single point of failure (internet).

-- Currently, the broadcast-based system using RDS is operating daily and continuously in 17 states (2 are statewide systems) on 550 radio stations.

II. GSS' COMMENTS REGARDING USE OF RADIO DATA SYSTEM (RDS) FOR EARTHQUAKE EARLY WARNINGS ("EEW")

USGS serves as the Federal Agent for early earthquake warning systems including the research and development of rapidly predicting earthquake shaking and geocode the areas of shaking. The objective of earthquake early warning is to rapidly detect the initiation of an earthquake, estimate the level of ground shaking to be expected, and issue a warning before significant ground shaking starts. A network of seismic sensors detects the first energy to radiate from an earthquake, the P-wave energy, and the location and the magnitude of the earthquake is rapidly determined. Then, the anticipated ground shaking across the region to be affected is estimated. The system can provide warning before the S-wave, which brings the strong shaking that usually causes most of the damage, arrives. Warnings will be distributed to local and state public emergency response officials, critical infrastructure, private businesses, and the public. EEW systems have been successfully implemented in Japan, Taiwan, Mexico, and other nations with varying degrees of sophistication and coverage.

Earthquake early warning methods provides warning times from a few seconds to a few tens of seconds, depending on the distance to the epicenter of the earthquake. This is enough time to slow and stop trains and taxiing planes, to prevent cars from entering bridges and tunnels, to move away from dangerous machines or chemicals in work environments and to take cover under a desk, or to automatically shut down and isolate industrial systems. However, earthquake-warning notifications must be transmitted without requiring human-review and response action must be automated, as the total warning times are short.

The United States Geological Survey (USGS), in collaboration with University partners, has developed an earthquake early warning system for the parts of the United States. The mission of USGS Earthquake Hazards Program is to mitigate earthquake losses in the United States. Citizens, emergency responders, and engineers rely on the USGS for accurate and timely information on where an earthquake occurred, how much the ground shook in different locations, and what the likelihood is of future significant ground shaking. A demonstration earthquake early warning system called Shake Alert began sending test notifications to selected users in January 2012. While that system has demonstrated the feasibility of Earthquake Early Warning in California, the full system, from event detection to notification distribution, continues to be tested for robustness and reliability. In particular, robust and reliable notification pathways have not yet been sufficiently developed for the earthquake early warning system per a report by Alliance for Telecommunications Industry Solutions (ATIS) titled Feasibility Study for Earthquake Early Warning System and can be found at the following weblink: (https://access.atis.org/apps/group_public/download.php/24638/Feasibility-study-for-earthquake-early-warning-system.pdf) .

Today, commercially available end-to-end notification platform based on FM radio broadcasts fed by satellite for distributing mass notifications are available. It consists of

a nationwide satellite delivery system to originate and uplink Common Alert Protocol (CAP) based emergency audio and text alerts. FM-based RDS receivers, cell phones equipped with a radio chip and software, and other consumer devices receive the alert messages.

Per Attachment 1 below, USGS and GSS collaborated to test earthquake early warning notifications via the FM-based alert system using RDS. The completed objective included USGS providing earthquake early warning notifications , posted to GSS alert software and transmitted to a set of RDS receivers in the Los Angeles Basin. USGS provided XML EEW messages that include a detected earthquake's location, magnitude and likelihood. Further, USGS provided processes to estimate ground shaking and S wave arrival times given a particularly latitude and longitude. GSS developed and implemented methodology to translate EEW XML messages into shaking intensities for a set of geographic regions (e.g. FIPS and/or broadcast coverage area regions). The FM/RDS receivers were augmented with software capabilities to enable user-defined thresholds for alerting.

In USGS's role as Federal Agent for EEW, USGS is charged with managing large complex systems involving multiple layers of coordination at the local, state, and federal levels to improve the nation's communications and warning capabilities during an earthquake. IPAWS and other contingency programs such as RDS delivery of alerts are designed to provide Americans with critical and timely hazard alerts and warning information that saves lives and property during emergencies and natural disasters.

RDS technologies have already been employed to distribute digital alert messages through FM radio stations. To improve the speed and penetration of Federal, State and Local emergency alerts and warnings, FEMA is evaluating this innovative method to maximize the efficiency and effectiveness of the alerts and warnings distribution infrastructure. This study validates the usefulness of existing RDS technologies to deliver notification of individuals during emergencies.

Please consider all the foregoing comments.

Respectfully submitted,

GLOBAL SECURITY SYSTEMS, LLC

By: _____

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Dated: May 9,2016

Attachment 1:

LAY SUMMARY PAGE
Cooperative Research and Development Agreement (CRADA)

TITLE OF CRADA (CRADA OPA Review #):
"Earthquake Early Warning Alerts using Radio Data System (RDS) Delivery"
(OPA Review #14-3318)

USGS Component:	Earthquake Science Center
Principal Investigator:	Doug Given
Collaborator:	Global Security Systems, LLC/ALERT FM
Collaborator Principal Investigator:	Matthew Straeb
TERM OF CRADA or TAA:	(3) years from the Effective Date
Effective Date:	March 31, 2014

Summary of the Statement of Work:

U.S. Geological Survey (USGS) and Global Security Systems, LLC (GSS) have established a collaboration to test the use of Radio Data System (RDS) alerting provided by GSS ALERT FM system to broadcast earthquake early warning alerts from the USGS ShakeAlert System. The USGS ShakeAlert System in California consists of sensors placed strategically throughout the state that detect seismic vibrations, trigger an alert, and send out warnings. These warnings could be distributed across outdoor sirens, ALERT FM receivers, smartphone apps, and other notification pathways.

An objective of the partnership is to have ShakeAlert earthquake early warning alerts posted to GSS alert software and broadcast to a set of GSS receivers. In addition, the USGS and GSS will work collaboratively on system design and best practices for alerting different sectors, including utilities, emergency response personnel, and other industries. Earthquake early warning will allow businesses to take actions to protect their employees, customers, and critical infrastructure from strong shaking. Even a few seconds of warning is enough to shutdown vulnerable processes, move people from unsafe places, and for people to drop, cover and hold on.

ALERT FM is unique since it operates a dedicated emergency notification system that is satellite-based and is not reliant on potentially vulnerable Internet connectivity. ALERT FM is already being used in many southern states for tornados and hurricane notification. ALERT FM uses the digital data subcarrier of local FM radio stations, including Univision station in southern California and public radio station KQED in northern California, to distribute critical alerts in as little as 6 seconds.

Information is received on portable or fixed receivers that can be programmed for specific groups, counties, or areas. ALERT FM receivers automatically tune to and lock on to the strongest FM signal in the area. As the USGS ShakeAlert System begins issuing public alerts for the West Coast of the US, ALERT FM receivers will be available for purchase by residents and businesses.

Attachment 2:

Global Security Systems (GSS) provides FM Broadcast-Based Notification for United States Geological Survey Earthquake Early Warning System
California Residents to Benefit

LAFAYETTE, LA- ***April 9, 2015***- Global Security Systems, LLC (GSS) announced today that they are working with the Department of Interior's U.S. Geological Survey (USGS) to integrate ALERT FM's broadcast-based alerting system with earthquake early warning alerts from the USGS ShakeAlert System. USGS and GSS signed a Cooperative Research and Development Agreement (CRADA) in 2014 to establish a collaboration to test the use of Radio Data System (RDS) alerting provided by GSS ALERT FM system. With additional resources, the USGS system could provide limited rollout across the State of California and the West Coast of the United States next year.

ALERT FM is unique since it operates a dedicated emergency notification system with the ability to deliver time-committed alerts unlike other cellular, telephone or broadcast systems which are tied to internet or telephonic switched systems. These systems delivery times are non-committal due to switched networks and lack of prioritization and timing delays as a result of commercial commitments. ALERT FM is satellite-based wireless and switchless unencumbered by internet connectivity and switches.

"ALERT FM is already being used in many southern states for tornados, hurricane evacuation," said Matthew Straeb, executive vice president of GSS. "ALERT FM uses the digital data subcarrier of local FM radio stations, including Univision station in southern California and public radio station KQED in northern California, to distribute critical alerts in from as little of 6 seconds but less than 60 seconds."

Information is received on addressable portable or fixed receivers that can be programmed for specific groups, counties, or areas. ALERT FM receivers automatically tune to and lock on to the strongest FM signal in the area. Once ALERT FM has been implemented in California as part of USGS system, receivers will be available for purchase by residents and businesses.

(more)

“The ALERT FM receiver automatically locks on the strongest FM station in the area that is on our network. This allows the portable receiver to easily move across counties, areas, or the entire state without losing functionality,” Straeb said.

The USGS ShakeAlert System in California consists of sensors placed strategically throughout the state that detect seismic vibrations and will trigger the system to send out warnings. These warnings could be distributed across outdoor sirens, ALERT FM receivers, smartphone apps, and other notification pathways.

“Earthquake early warning will allow businesses to take actions to protect their employees, customers, and critical infrastructure from strong shaking. Even a few seconds of warning is enough to shutdown vulnerable processes, move people from unsafe places, and for people to drop, cover and hold on”, said Doug Given, Earthquake Early Warning Coordinator for USGS.

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About Global Security Systems, LLC (“GSS”)
Global Security Systems is a systems integrator, service provider and manufacturer of the ALERT FM, Alert Studio and GSSNet, a satellite data delivery system. GSS has participated in the development of IPAWS based systems, is a member of the Commercial Mobile Alert Service systems committee, and is actively involved with several EAS and CAP committees. The GSS nationwide GSSNet satellite data delivery system for emergency alerts currently is in operation on over 500 radio stations in 17 states and Canada; is growing daily; and includes the ability to generate and deliver CAP messages. Corporate website: www.alertfm.com

About Partnerships with USGS
The Cooperative Research and Development Agreement (CRADA) is one of the principal mechanisms used by federal laboratories to engage in collaborative efforts with non-federal partners to achieve the goals of technology transfer. Technology transfer is the process by which existing knowledge, facilities, or capabilities developed under federal research and development (R&D) funding are utilized to fulfill public and private needs. For more information about establishing partnerships with USGS, see the website: http://www.usgs.gov/aboutusgs/working_with_us/partnerships.asp